

# **BIOLOGY 184 – Evolution and Biodiversity**

**Department of Biology, University of Victoria**

**Fall 2019**

## **Course description**

This course will survey all of biological diversity – prokaryotes, protists, plants, fungi and animals – and will use a fundamental fact of the living world, evolution, to tie together this diversity. It will also introduce genetics.

## **Lecture meetings**

A01 – Monday and Thursday, 8:30 – 9:50 AM, Bob Wright B150

A02 – Monday and Thursday, 11:30 AM – 12:50 PM, Bob Wright B150

A03 – Monday and Thursday, 3:30 – 4:50 PM, Bob Wright B150

## **Lecture instructors**

- Dr. Greg Beaulieu, Petch 006, phone 250-721-7140. Email [gregoryb@uvic.ca](mailto:gregoryb@uvic.ca).

If you send an email, please put “Biology 184” in the message line.

Office hours: Wednesday, 10:30 AM – 12:00 noon

Dr. Beaulieu will also be serving as **course coordinator**, so if you have any course business or other issues, apart from lab business, he is the person to see.

- Dr. Patrick von Aderkas, Petch 052a, phone 250-721-8925.

Email: [pvonader@uvic.ca](mailto:pvonader@uvic.ca). If you send an email, please put “Biology 184” in the message line.

Office hours: Wednesday, 10:30 AM – 12:00 noon

- Dr. David Punzalan, Petch 007, phone 250-721-7109

Email: [davidpunzalan@uvic.ca](mailto:davidpunzalan@uvic.ca)

Office hours: TBA / by appointment

## **Lab coordinator**

Dr. Katy Hind, Senior Lab Instructor, Cunningham 010, phone 250-721-8713.

Email: [biologylabs@uvic.ca](mailto:biologylabs@uvic.ca)

## **Prerequisite**

Any one of: Biology 11, Biology 12, Biology 150A, Biology 150B, Biology 186. You may also take this course if you have a high school biology course from outside British Columbia, or a post-secondary biology course from another institution.

*A course in chemistry at either the high school or university level is strongly recommended.*

### **Required text**

*Campbell Biology*, second Canadian edition, by Reece, Urry, Cain, Wasserman, Minorsky and Jackson. The text has a picture of male pine cones on the cover. It is available in the UVic Bookstore and in SubText. This is the same book that will be used in Biology 186.

We are still using the same text and edition as was used in Biology 184/186 last year, so used copies are available.

The text prices of various formats are as follows (as of August 27; this list of prices is not official):

UVic Bookstore –

- new book \$166.75 (includes access to the publisher's website, Mastering Biology, and the etext)
- used book \$125.25 (does not include Mastering Biology or etext access)
- etext + Mastering Biology \$115.00 (access for 180 days only)

SubText –

- used book \$90-\$145, depending on condition

As you see above, new copies of the text come with access to the publisher's website, Mastering Biology plus the etext. Some students find this access useful, but we do not require access in this course, so a used book will do fine. Biology 186 will not require website access either.

If you buy a new book, or if you buy the etext + Mastering Biology, you will need a course ID to get into the Pearson website. The course ID is BIOL184F2019.

If you decide to use some other edition of the book or some other biology text, for budgetary reasons or reasons of convenience, you will have to find the relevant pages in the book you have, based on the lecture material.

### **Labs**

Labs begin on Monday, September 9. Please purchase a lab manual from the bookstore and bring it to the first lab. **You must come to your first lab to hold your place in the course.**

Students sometimes have challenges and queries pertaining to lab assignments and exams. If you have such an issue, your TA and the senior lab instructor will be happy to discuss it with you, but please raise the issue with them within one week after receiving the marked assignment or exam. We cannot consider appeals after that.

### **Course website**

Biology 184 has a CourseSpaces website, where you will find lecture and lab notices, test results, practice questions, exam information, links and lecture notes. Please check the site before each class and lab.

### **Class conduct**

We ask you to be mindful of where you are, and to treat the people around you with respect and courtesy. Talking in class, texting and surfing are all irksome to students sitting nearby and to the instructor. Please turn your cell phones and all social media sites OFF during class time.

Focusing on the lecture instead of being distracted by the internet will help you to be successful in this course and in all your other courses.

### **Make friends**

Get to know the people around you. It is useful if you know someone in the class from whom you can get expanded notes in case you miss a class, and to whom you can lend your notes when needed. (The lecture notes we post on CourseSpaces are skeletal notes only.)

### **Evaluation**

Midterm lecture exam	15%
Final lecture exam	45%
Lab	40%

You must pass the lab in order to pass the course. If you fail the lab, your course grade will be F. We will determine if you passed the lab by rounding your lab grade out of 40 to the nearest whole number; 20/40 is the pass line. So 19.51 would round up to 20, and you would pass, but 19.49 would round down to 19, and you would not pass.

Biology 184 has nine lab sessions (not including exams). If you miss three or more of these, you will receive a course grade of F, even if you have a medical excuse for the missed sessions.

In the lab, the Academic Integrity assignment is an official requirement of the course. That means that you must pass this assignment, or you will get an N (incomplete) in the course (see **Grading**, below).

You will also get an N if you do not write the final exam in December without a valid reason.

It is not necessary to pass the lecture exams (midterm and final), either together or individually, to pass the course. It is possible to fail the lecture exams and still be saved by a good lab mark.

### **Exams**

*Midterm Exam (Wednesday, October 16, 7:00 – 9:00 PM)*

- The exam will involve some questions from the lecture (all multiple choice), and some from the lab (all multiple choice).
- The lecture questions will count 15% of your course grade; the lab questions will be part of your overall lab grade.
- See the table below, on the next page, for the room where you will write your midterm exam.
- Some students will have a commitment elsewhere on the evening of October 16. See the next page, under “Deferred midterm exam” for alternative midterm exam arrangements if you have such a conflict.

*Final Exam (December final exam period)*

- The final exam will involve some questions from the lecture (all multiple choice), and some from the lab. The lecture material will be cumulative, meaning that the exam will test all lecture topics of the course, but with an emphasis on material covered in class since the midterm. The lab exam will not be cumulative. The lecture questions will count 45% of your course grade; the lab questions will be part of your overall lab grade.
- The final exam will be written in the McKinnon Gym at a time that will be scheduled by the university. The final exam schedule will be posted on the UVic website in early October.

**Rooms for the midterm on Wednesday, October 16, 7:00 – 9:00 PM**

<u>Last name</u>	<u>Exam room</u>
A – H	Bob Wright B150
I – O	David Lam Auditorium (MacLaurin A144)
P – S	David Strong C103
T – Z	Elliot 168

**Deferred midterm exam**

Students who have a commitment in another course (class, lab, tutorial) are eligible to write a deferred midterm exam. This will take place on Thursday, October 17, 7:00 – 9:00 PM, in Bob Wright B150.

If you have a course commitment on both Wednesday and Thursday evening, there will be a second deferred midterm writing on Saturday, October 19, 3:00 – 5:00 PM, in Bob Wright A104.

Please notify the course coordinator (Dr. Beaulieu, [gregoryb@uvic.ca](mailto:gregoryb@uvic.ca)) before the exam if you have such a commitment and you wish to write a deferred exam. *The deferred exams are open only to students who have a commitment in another course, or who miss the regular exam writing due to illness.* In your email, please tell me the course you are registered in that prevents you from writing at the regular time. You must be registered in that course to be eligible to write a deferred exam, or you must present documentation of your illness.

**Exam policy**

No electronic devices will be permitted during the midterm exam and final exam.

During the midterm exam and the final exam, the invigilators cannot answer any clarification questions. However, if you believe a question is bad (no correct answer, more than one equally correct answer), please bring your concerns to the attention of the invigilator who is collecting the exams.

If you must miss the midterm exam for a valid reason (illness, accident, family affliction, or competition as a UVic athlete), you must notify the course coordinator (Dr. Beaulieu, [gregoryb@uvic.ca](mailto:gregoryb@uvic.ca)) as soon as possible and provide suitable documentation for your absence. You will be excused from the midterm, and your course grade will be calculated from the other components of the course. You will not incur any penalty.

The final exam can be deferred in cases of illness, accident, family affliction, or commitments as a UVic athlete. If you expect to miss the final exam for any of these reasons, please notify the course coordinator (Dr. Beaulieu, [gregoryb@uvic.ca](mailto:gregoryb@uvic.ca)) as soon as possible, either by phone, email or in person. You must also fill out a Request for Academic Concession (RAC) form, available from Undergraduate Admissions and Records in the University Center or online (<http://www.uvic.ca/registrar/assets/docs/record-forms/rac.pdf>).

Travel plans are not a valid reason for missing the midterm exam or the final exam, even Christmas travel plans, and even if a plane ticket has been purchased for you by someone else without your knowledge. Do not make plans to leave Victoria in December until all your exams are finished.

This term, the final exam period ends for all faculties on Saturday, December 21; the last exam will be in the evening of that day. Your last exam might be on this date, or it might be sooner – you won't know until the final exam schedule is posted in October.

### **Deferred final exam**

For those students who need to defer the final exam for any of the reasons listed above (illness, accident, family affliction, or commitments as a UVic athlete), the deferred final will be written on Saturday, January 11, 2020, 10:00 AM – 1:00 PM, in Bob Wright A104.

*This constitutes your official notice of the time and place.*

### **Grading**

At the University of Victoria, grades are submitted by instructors as percentages. These will be converted to letter grades by administration, according to the grading scale given in the university calendar.

We cannot change your grade, except if we have made an error in determining it. There is no extra work that you can do to raise your grade. *Please do not ask us to raise your grade because you need or want a higher one.*

No supplemental final exam (second-chance final exam) will be given in this course, although, as described above, you may defer the final exam for any of the reasons given.

You will receive a grade of N (a failing grade which indicates that an essential course requirement was not completed) in either of these cases:

- you do not complete the academic integrity assignment in the lab
- you miss the final exam without a valid reason

You will receive an F in the course in any of these cases:

- you miss three or more labs, even with medical or other documentation
- you do not pass the lab (20/40)
- you pass the lab but have an aggregate course grade less than 50%.

### **Cheating and Plagiarism**

The University and the Biology Department deal with cheating and plagiarism as a serious matter, since ignoring it could be interpreted as endorsing dishonest practice in one's later professional career. To claim ignorance of the University's policy on academic integrity is, therefore, not excused.

Please read the policy carefully to avoid unpleasant misunderstandings. The policy can be found on the online UVic calendar:

<http://web.uvic.ca/calendar2019-09/undergrad/info/regulations/academic-integrity.html>

The University of Victoria Department of Biology reserves the right to use plagiarism detection software or other platforms to assess the integrity of student work.

### **Important dates**

On the UVic website you will find a fuller list of important dates, but the ones we have listed below are the ones that will matter to students in Biology 184 and to students wishing to add the course this term.

Wednesday, September 4	First day of classes
Monday, September 9	First day of labs in Biology 184
Friday, September 20	Last day for adding classes
Monday, October 14	Thanksgiving holiday
Wednesday, October 16	Biology 184 Midterm Exam, 7:00 – 9:00 PM
Thursday, October 17	Deferred midterm A, 7:00 – 9:00 PM
Saturday, October 19	Deferred midterm B, 3:00 – 5:00 PM
Thursday, October 31	Last day for withdrawing from courses without penalty of failure
Mon-Wed, November 11-13	Reading break; no classes or labs
Wednesday, December 4	Last day of classes
Saturday, December 7	First day of final exam period
Saturday, December 21	Last day of final exam period
Saturday, January 11, 2020	Deferred final exam, 10:00 AM – 1:00 PM, Bob Wright A104

### Lecture topics and text readings (tentative)

These readings might be changed by the instructors during the course; you will be notified of any changes.

*Dr. Beaulieu (September 9 – 19)*

Evolution and systematics	Chapter 26
The cell cycle & sexual life cycles	Chapter 12, pp. 243-253; Chapter 13
Prokaryotes	Chapter 27, pp. 603-613

*Dr. von Aderkas (September 23 – October 10)*

#### **Protists I & II**

In Chapter 25 read **p. 560** (The First Eukaryotes), and **Fig 25.10 p. 561**

In Chapter 28 **selected readings are bolded (below)**, omissions are italicized  
**pp. 625 to top of page 632**

**pp. 647-649, including concept check 28.6**

**Supergroup Excavata: diplomonads, p. 632**

*omit parabasalids & euglenozoans on pp. 632-633*

**Supergroup Stramenopiles, including diatoms, brown algae, alveolates,  
dinoflagellates, apicomplexans pp. 634-639**

**NB-oomycetes, which are in the lab and lecture, are not in the book**

*omit golden algae pp.635*

*omit rhizarians, radiolarians, forams & cercozoans pp.639-42*

**Supergroup Unikonta: amoebozoans, pp.644-646**

*omit opisthokonts pp. 646-647*

**Supergroup Archaeplastida: red algae, green algae, pp.642-643**

**Seedless plants: Chapter 29**

**Seed plants: Chapter 30**

*Dr. Punzalan (October 17 – November 7)*

Fungi	Chapter 31, pp. 692-711
Introduction to animal diversity	Chapter 32, pp. 712-724
Invertebrates	Chapter 33, pp. 726-758
Chordates	Chapter 34, pp. 759-785, 797

*Dr. Beaulieu (November 14 – December 2)*

Genetics	Chapter 14, pp. 281 – 296; Chapter 15, pp. 307 – 309
Introduction to evolution	Chapter 22
Evolution of populations	Chapter 23
Speciation	Chapter 24, pp. 530-540